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Overview

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In Depth

Nylon was the world's first true synthetic fiber and one of DuPont's most successful products. It also set the pattern for research and development that DuPont followed for nearly 50 years. Nylon was discovered by Dr. Wallace Carothers, whose work at DuPont focused on polymers, very large molecules with repeating chemical structures. In April 1930 a lab assistant working with esters - compounds which yield an acid and an alcohol or phenol in reaction with water discovered a very strong polymer that could be drawn into a fiber. This polyester fiber had a low melting point, however. Carothers changed course and began working with amides, which were derived from ammonia. In 1935 Carothers found a strong polyamide fiber that stood up well to both heat and solvents. He evaluated more than 100 different polyamides before choosing one for development.

Nylon was commercialized remarkably quickly, in part due to DuPont's experience with rayon. After determining that low-cost production was possible and settling on a target market (women's hosiery). DuPont produced a preliminary batch of nylon staple. To confirm that the nylon hose would be practical, the staple was delivered to a commercial knitting mill under conditions of extreme secrecy (the research chemist who delivered the samples to the mill slept with them on the train). It took two test runs and further development to convince DuPont to build a pilot plant in Wilmington and, finally, a full-scale production facility in Seaford, Delaware, Commercial production began in late 1939.

DuPont did not register "nylon" as a trademark

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choosing to allow the word to enter the American vocabulary as a synonym for "stockings." From the time it went on sale to the general public in May 1940, nylon hosiery was a huge success: women lined up at stores across the country to obtain the precious goods. In 1941 DuPont established a second nylon plant in Martinsville, Virginia, to meet the demand. With the onset of World War II, production was channeled into a host of national defense uses including parachutes and B-29 bomber tires.

In 1950 DuPont issued its first license to another firm for the production of nylon. At the same time the company developed it for other markets, particularly as belting in truck and automobile tires. At mid-decade, after a successful six-year test at Wilmington's Hotel du Pont, DuPont began producing a nylon staple for carpeting. In 1959 DuPont introduced an improved product, bulked continuous filament (BCF) nylon, which, along with Antron® nylon, introduced in 1960, revolutionized the carpet industry. The development of new varieties of nylon continued during the 1960s and 1970s with durable Zytel® nylon resins and Qiana®, a silk-like nylon. Although its profitability has diminished over time as competitors entered the market, DuPont remains the world's leading producer of nylon chemical intermediates, polymers, and textile fibers.

Nylon changed the way people dressed worldwide and rendered the term "silk stocking" – once an epithet directed at the wealthy elite – obsolete. Its success also encouraged DuPont's management to adopt a long-term strategy of growth through products developed out of basic research.

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